**2016-2017 Report on the Results of a General Education Curriculum Study:
Student and Instructor Engagement and Learning in E-Series Courses**

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# Executive Summary of the 2016-2017 Report on the Results of a General Education Curriculum Study: Student and Instructor Engagement and Learning in E-Series Courses

## Study Background

The current *Liberal Studies for the 21st Century* curriculum at Florida State University was designed to provide students with the skills, habits of thinking, and experiences needed for success in the 21st Century, including the ability to communicate well, think critically, innovate, and collaborate to solve complex problems in a diverse society. Each E-Series course approved for inclusion in the Liberal Studies for the 21st Century curriculum must be designed so that instructional materials and methods clearly help students attain competency in the area/s for which the course is certified.

E-Series courses, the most distinctive and novel additions to the General Education curriculum, are designed to enhance higher-order thinking and foundational academic skills as students engage in active learning through inquiry about important issues of contemporary relevance. The course design requirements and pedagogical methods used in E-Series are intended to excite students about learning, pique curiosity, engage them intellectually, foster their ability to bring multiple perspectives to bear on problems through evaluation and analysis, and to develop critical and flexible thinking. The writing requirements in E-Series courses help students become skilled writers, but also create a process through which students develop the aforementioned academic and intellectual skills. As such, E-Series courses have great potential to change the culture and quality of instruction and learning at FSU.

The full report summarizes findings from a study of E-Series faculty and students who participated in E-Series courses at Florida State University. The study, conducted in Academic Year 2016-2017, obtained data using quantitative surveys and qualitative interviews.

## Study Purpose

*Goals*
1) Provide FSU faculty, students, and administrators with feedback on the E-Series program.
2) Identify potential barriers related to sustainability of the E-Series program.
3) Develop strategies for further enhancement of E-Series pedagogy and student learning.

*Objectives*
1) Compare the effectiveness of E-Series courses for student development relative to that of other lower-division undergraduate courses.
2) Describe the pedagogical methods used by instructors in E-Series courses.
3) Assess aspects of course design and teaching strategies that facilitated student engagement and the development of analytical and flexible thinking and curiosity.
4) Evaluate instructor satisfaction with teaching E-Series courses.
5) Assess faculty perceptions about the value of E-Series courses overall, motives for developing and teaching E-Series courses, and structural factors that might increase or decrease their likelihood of offering E-Series courses in the future.

## Study Methods and Sample
*Data Collection Methods*

We obtained quantitative data through Qualtrics surveys of instructors and students in E-Series courses taught in Fall 2015 and Spring 2016 at the Tallahassee (Main) Florida State University campus. Honors and non-honors students were surveyed separately and results are presented separately for these student groups. Some open-ended questions were asked in this survey. Qualitative data were elicited through intensive (30- to 120-minute) interviews with instructors who responded to the quantitative survey and who indicated interest in participating in a qualitative interview.

*Sample*

Of 96 instructors who taught E-Series courses during the study time frame, 67 responded to the quantitative survey, yielding a response rate of 70%. Of the 1061 honors students enrolled in an E-Series course in the study time frame 165 responded, a 16% response rate. The lowest response rate was among non-honors students (4%) with 163 responses of 3713 in the population. See Table 1.

| Table 1. Sample Characteristics and Response Rates for the Quantitative E-Series Survey[1] | | | |
|---|---|---|---|
| | **N** (Population) | **n** (Sample Size) | **Response Rate** |
| Faculty[2] | 96 | 67 | 70% |
| Honors Students | 1061 | 165 | 16% |
| Non-Honors Students | 3713 | 163 | 4% |

[1]Includes instructors who taught an E-Series course and students who completed an E-Series course at Florida State University during AY 2015-2016.
[2]Of faculty respondents, 61% taught an E-Series course one time, 14% taught E-Series twice, 14% taught E-Series three times, 10% taught them four or more times, total, by the time data collection began.

Of the sixty-seven instructor respondents to the quantitative survey, 37 agreed to a qualitative interview. Of these, 20 instructors were chosen through purposive sampling to be interviewed in the first round. Eighteen interviews were completed through spring semester of 2017. The remaining two interviews could not be completed due to schedule conflicts.

**Key Findings**
- The majority of E-Series instructors (92.5%) feel that students should be required to take at least one E-Series course. A large proportion of instructors (71.6%) agree that students should be required to complete two or more E-Series courses.
- Just over 80% of honors students and just under 70% of non-honors students feel that students should be required to take at least one E-Series course.
- The maximum preferred size of E-Series course sections was 20-39 for faculty and honors students and 45-59 for non-honors students.
- The vast majority of faculty (78%-87%) agree that, relative to other General Education courses, E-Series courses promote increased student engagement, improved writing skills, curiosity, the ability to use multiple perspectives to address issues, critical thinking, analysis, and excitement about learning. Faculty were a little less likely to perceive that E-series courses helped improve problem solving skills (65.7%).
- Student perceptions about whether E-Series courses help them attain intended learning goals largely mirrors those of faculty. Consistent with results for faculty, both non-honors students and honors students were least likely to report that E-Series courses helped them develop problem-solving skills (32.1% and 36.4% respectively).
- A significant majority of faculty (73.1%) used an inquiry-based approach, an effective pedagogical method for increasing students' independent, analytical and critical thinking, and curiosity, which fosters the capacity for life-long learning.
- A large majority of faculty instructors agree that the pedagogical strategies intended to be used in E-Series courses helped students become better students and learners. Nearly all instructors felt the following were effective: interactive in-class activities (94%), exploring a big idea or question (91%), and providing writing feedback (88%). A slight majority of students (53.9% of honors and 50.0% of non-honors) deemed small group work effective for learning.
- The qualitative results corroborate the quantitative findings and add additional direction for E-Series program development.
- Overall, this E-Series study illustrates the power of E-Series courses to stimulate student intellectual development and an enhanced capacity for success in courses across the curriculum, in major courses, and beyond the classroom.

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**Full Report on the 2016-2017 Results of a General Education Curriculum Study:**
**Student and Instructor Engagement and Learning in E-Series Courses**

**Introduction and Background**
The current Liberal Studies program is the result of an extensive revision of the Liberal Studies curriculum from 2014-2015, which was motivated by changes to the State of Florida's General Education policy in 2013. This policy required that State University System (SUS) institutions in Florida offer a common set of "State Core" General Education courses, which are distributed across five areas: Math, English, Social Sciences/History, Natural Sciences, and Humanities.

As a whole, the *Liberal Studies for the 21st Century* curriculum was designed to provide students with the skills, habits of thinking, and experiences needed for success in the 21st century including the ability to communicate well, think critically, innovate, and collaborate to solve complex problems in a diverse society. Each course approved for inclusion in the *Liberal Studies for the 21st Century* curriculum is designed so that instructional materials and methods clearly help students attain competency in the area/s for which the course is certified. In addition, each instructor specifies how student attainment of E-Series competencies will be evaluated using valid in-course assessments. The first courses in the curriculum were offered in Summer of 2014 and full implementation began in Fall of 2015.

The *Liberal Studies for the 21st Century* curriculum is comprised of a General Education curriculum and a set of University-Wide (i.e., "graduation") requirements. The current structure of the Liberal Studies General Education curriculum parallels and subsumes the State Core areas and includes six competency areas: Quantitative and Logical Thinking, English Composition, Social Sciences/History, Ethics and Social Responsibility, Humanities and Cultural Practice, and Natural Sciences. In addition, students are required to complete one inquiry-based E-Series course. E-Series courses focus on broad questions that are relevant to humanity and our natural world and can be explored, examined, and experimented upon (thus the "E"). All E-Series courses must also be approved for one of the General Education competency areas or for Scholarship in Practice. Ideally, students will take E-Series courses outside of their majors to develop intellectual breadth.

E-Series courses, the most distinctive and novel additions to the Liberal Studies General Education curriculum, are designed to enhance higher-order thinking and foundational academic skills as students engage in active learning through inquiry about important issues of contemporary relevance. The course design requirements and pedagogical methods used in E-Series are intended to excite students about learning, pique curiosity, engage them intellectually, foster their ability to bring multiple perspectives to bear on problems through evaluation and analysis, and to develop critical and flexible thinking. The writing requirements in E-Series courses help students become skilled writers, but also create a process through which students develop the aforementioned academic and intellectual skills. As such, E-Series courses have great potential to change the culture and quality of instruction and learning at FSU.

The addition of E-Series courses to the curriculum required a substantial and positive shift in the way instructors designed and taught courses and assessed student achievement. Inquiry-based courses are most effective and feasible in small sections, which allow students to reflect on and engage in course material with one another and with their expert faculty instructor. The median section size for E-Series courses is 23 and the average size is 38.

This document summarizes findings from a study of E-Series faculty and students who participated in E-Series courses at Florida State University. The study, conducted in Academic Year 2016-2017, obtained data using quantitative surveys and qualitative interviews. The study's purpose and methods are described first, followed by a summary of findings of the quantitative survey in graphical form.

**Study Purpose**

*Goals*
1) Provide FSU faculty, students, and administrators with feedback on the E-Series program.
2) Identify potential barriers related to sustainability of the E-Series program.
3) Develop strategies for further enhancement of E-Series pedagogy and student learning.

*Objectives*
1) Compare the effectiveness of E-Series courses for student development relative to that of other lower-division undergraduate courses.
2) Describe the pedagogical methods used by instructors in E-Series courses.
3) Assess aspects of course design and teaching strategies that facilitated student engagement and the development of analytical and flexible thinking and curiosity.
4) Evaluate instructor satisfaction with teaching E-Series courses.
5) Assess faculty perceptions about the value of E-Series courses overall, motives for developing and teaching E-Series courses, and structural factors that might increase or decrease their likelihood of offering E-Series courses in the future.

**Study Methods**

*Sample.* The study population included instructors and students of E-Series courses taught in Fall 2015 and Spring 2016 at Tallahassee FSU campus. Please see details about the sample in Table 1.

*Data and Analyses.* Quantitative data were obtained through Qualtrics surveys of E-Series instructors and students. Honors students and non-honors students were surveyed separately. Results are presented separately for these student groups. The Qualtrics survey asked respondents to provide the name, number, and course description of the E-Series course they taught or completed. The survey also asked about instructor and student perceptions of the importance of the E-Series requirement, and the ideal and maximum preferred class sizes. Nine Likert-type scales were used to assess the degree to which students attained the dimensions of student learning and development intended by the design of E-series courses. Seven Likert-type scales tapped perceptions about the utility of various pedagogical strategies in E-series courses. In addition, open-ended questions were used to obtain instructor and student comments about E-Series courses and requirements. SPSS was used to collate data, recode variables, and derive frequencies and cross-tabulations.

Qualitative data were elicited through intensive (30- to 120-minute) interviews with instructors who responded to the quantitative survey and who indicated interest in participating in a qualitative interview. Of 67 instructor respondents to the quantitative survey, 37 agreed to a qualitative interview. Twenty instructors were chosen through purposive sampling to be interviewed in the first round. Eighteen interviews were completed through spring semester of 2017. Additional analyses will be completed in Fall of 2017 or Spring 2018, but preliminary results indicate theoretical saturation, meaning that similar common themes emerged across the faculty instructor interviews analyzed to date. Qualitative interviews were transcribed, coded, and analyzed manually with cross-checking for inter-coder reliability. In addition, the Qualtrics survey elicited some open-ended responses from both faculty and students that supplement findings from the intensive faculty interviews.

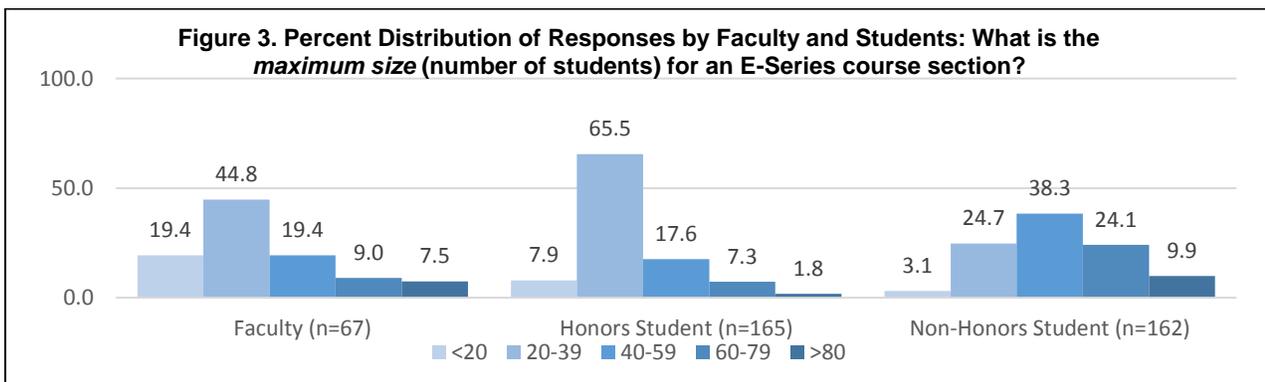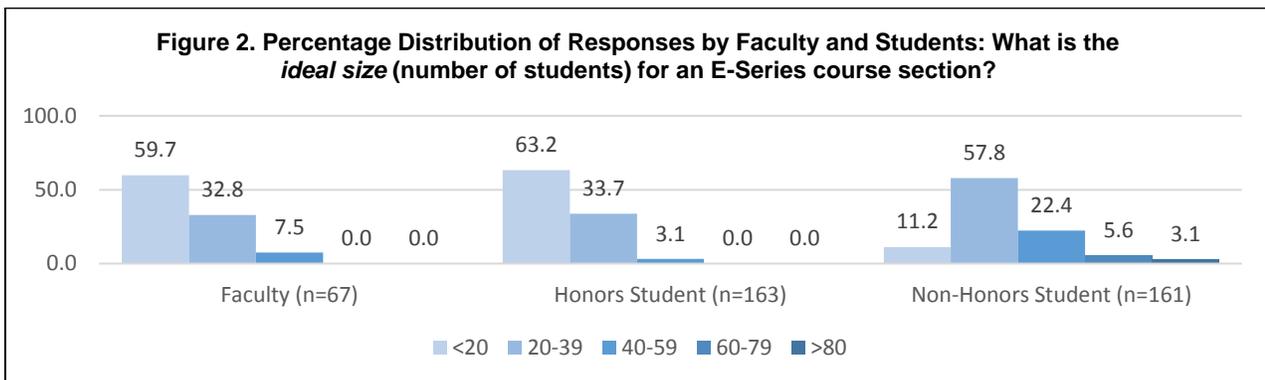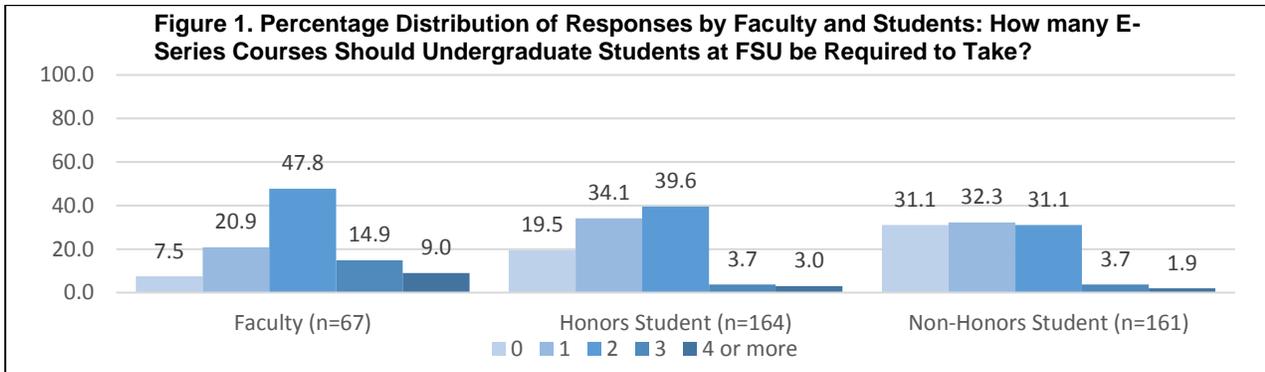| Table 1. Sample Characteristics and Response Rates for the Quantitative E-Series Survey[1] | | | |
|---|---|---|---|
| | **N** (Population) | **n** (Sample Size) | **Response Rate** |
| Faculty[2] | 96 | 67 | 70% |
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| [1]Includes instructors who taught an E-Series course and students who completed an E-Series course at Florida State University during AY 2015-2016. | | | |
| [2]Of faculty respondents, 61% taught an E-Series course one time, 14% taught E-Series twice, 14% taught E-Series three times, 10% taught them four or more times, total, by the time data collection began. | | | |

**Summary of Quantitative Findings**

*Course Requirements and Class Size*

Figure 1 indicates that the overwhelming majority of faculty E-Series instructors (92.5%) feel that students should be required to take at least one E-Series course and a large proportion of faculty instructors (71.6%) agree that students should be required to complete two or more E-Series courses. Only 7.5% of faculty respondents indicate that students should not be required to take an E-Series course. Student opinions on this requirement differ from those of faculty, though just over 80% of honors students and just under 70% of non-honors students feel that students should be required to take at least one E-Series course. Note: Detailed results of cross-tabulation analyses of differences in perceptions between faculty and students and non-honors students and honors students for all outcomes under study are available on request.

**Figure 1. Percentage Distribution of Responses by Faculty and Students: How many E-Series Courses Should Undergraduate Students at FSU be Required to Take?**

Faculty (n=67): 0 = 7.5, 1 = 20.9, 2 = 47.8, 3 = 14.9, 4 or more = 9.0
Honors Student (n=164): 0 = 19.5, 1 = 34.1, 2 = 39.6, 3 = 3.7, 4 or more = 3.0
Non-Honors Student (n=161): 0 = 31.1, 1 = 32.3, 2 = 31.1, 3 = 3.7, 4 or more = 1.9
Legend: 0, 1, 2, 3, 4 or more

**Figure 2. Percentage Distribution of Responses by Faculty and Students: What is the *ideal size* (number of students) for an E-Series course section?**

Faculty (n=67): <20 = 59.7, 20-39 = 32.8, 40-59 = 7.5, 60-79 = 0.0, >80 = 0.0
Honors Student (n=163): <20 = 63.2, 20-39 = 33.7, 40-59 = 3.1, 60-79 = 0.0, >80 = 0.0
Non-Honors Student (n=161): <20 = 11.2, 20-39 = 57.8, 40-59 = 22.4, 60-79 = 5.6, >80 = 3.1
Legend: <20, 20-39, 40-59, 60-79, >80

**Figure 3. Percent Distribution of Responses by Faculty and Students: What is the *maximum size* (number of students) for an E-Series course section?**

Faculty (n=67): <20 = 19.4, 20-39 = 44.8, 40-59 = 19.4, 60-79 = 9.0, >80 = 7.5
Honors Student (n=165): <20 = 7.9, 20-39 = 65.5, 40-59 = 17.6, 60-79 = 7.3, >80 = 1.8
Non-Honors Student (n=162): <20 = 3.1, 20-39 = 24.7, 40-59 = 38.3, 60-79 = 24.1, >80 = 9.9
Legend: <20, 20-39, 40-59, 60-79, >80

- Nearly 60% of faculty indicate that E-Series sections should be smaller than 20 students, consistent with the proportion of honors students who felt this way (63.2%). The majority of non-honors students surveyed (57.8%) felt that sections of 20-39 were ideal (Figure 2). The maximum preferred size of E-Series course sections was 20-39 for faculty and honors students and 45-59 for non-honors students (Figure 3).

*How E-Series Courses Promote Student Learning and Development*

Figures 4-12, below, show the distribution of responses by faculty, honors, and non-honors students to the following question stem: "Please indicate the extent to which you agree with each of the following statements. Compared to other General Education courses, the E-Series Course…" For each figure below, responses of "Strongly Agree" or "Agree" are classified in the "Agree" category, responses of "Neither Agree nor Disagree" were categorized as "Neither", and responses of "Disagree" and "Strongly Disagree" are classified into the "Disagree" category.
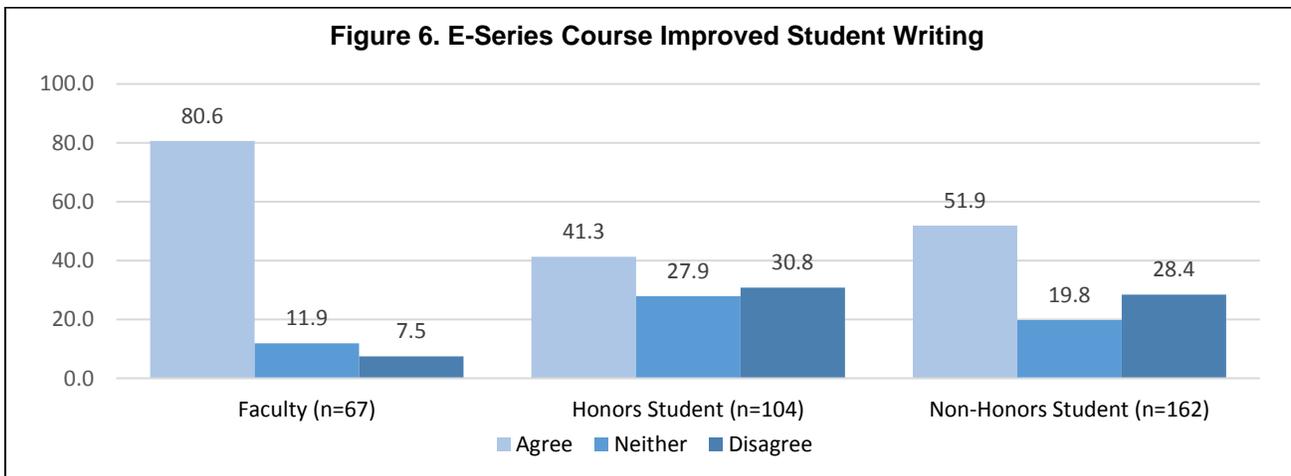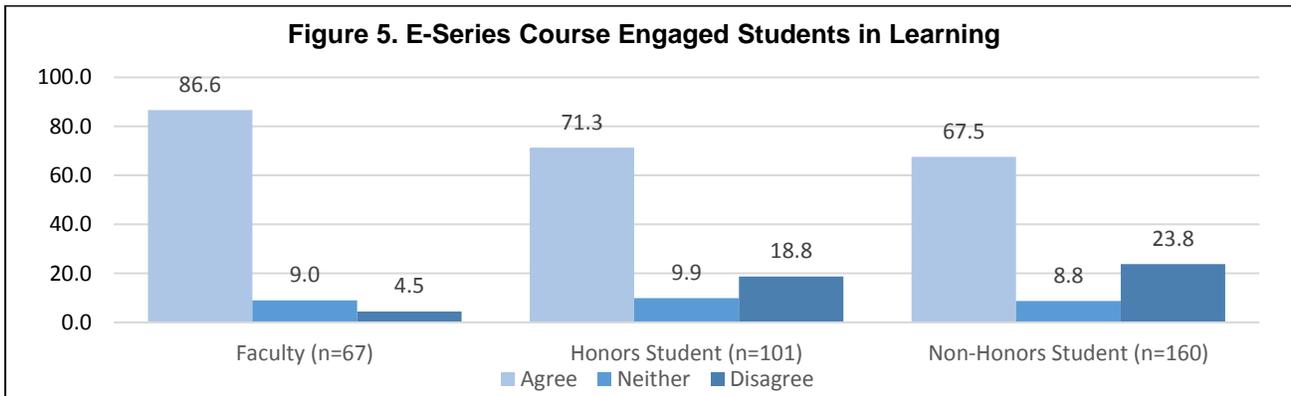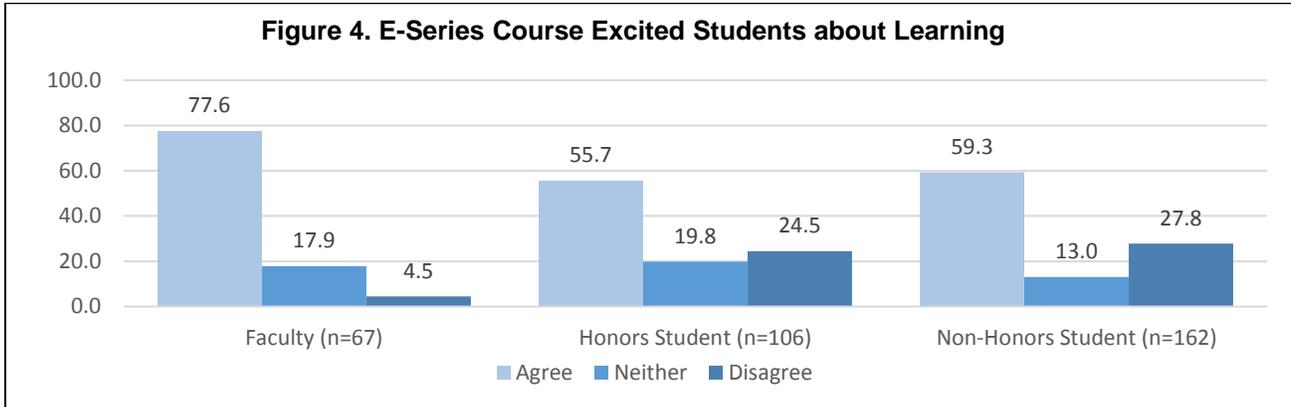


**Figure 4. E-Series Course Excited Students about Learning**

| | Agree | Neither | Disagree |
|---|---|---|---|
| Faculty (n=67) | 77.6 | 17.9 | 4.5 |
| Honors Student (n=106) | 55.7 | 19.8 | 24.5 |
| Non-Honors Student (n=162) | 59.3 | 13.0 | 27.8 |



**Figure 5. E-Series Course Engaged Students in Learning**

| | Agree | Neither | Disagree |
|---|---|---|---|
| Faculty (n=67) | 86.6 | 9.0 | 4.5 |
| Honors Student (n=101) | 71.3 | 9.9 | 18.8 |
| Non-Honors Student (n=160) | 67.5 | 8.8 | 23.8 |



**Figure 6. E-Series Course Improved Student Writing**

| | Agree | Neither | Disagree |
|---|---|---|---|
| Faculty (n=67) | 80.6 | 11.9 | 7.5 |
| Honors Student (n=104) | 41.3 | 27.9 | 30.8 |
| Non-Honors Student (n=162) | 51.9 | 19.8 | 28.4 |

**Figure 7. E-Series Course Piqued Curiosity**

| | Agree | Neither | Disagree |
|---|---|---|---|
| Faculty (n=67) | 86.6 | 9.0 | 4.5 |
| Honors Student (n=118) | 72.0 | 11.0 | 16.9 |
| Non-Honors Student (n=162) | 64.8 | 13.0 | 22.2 |
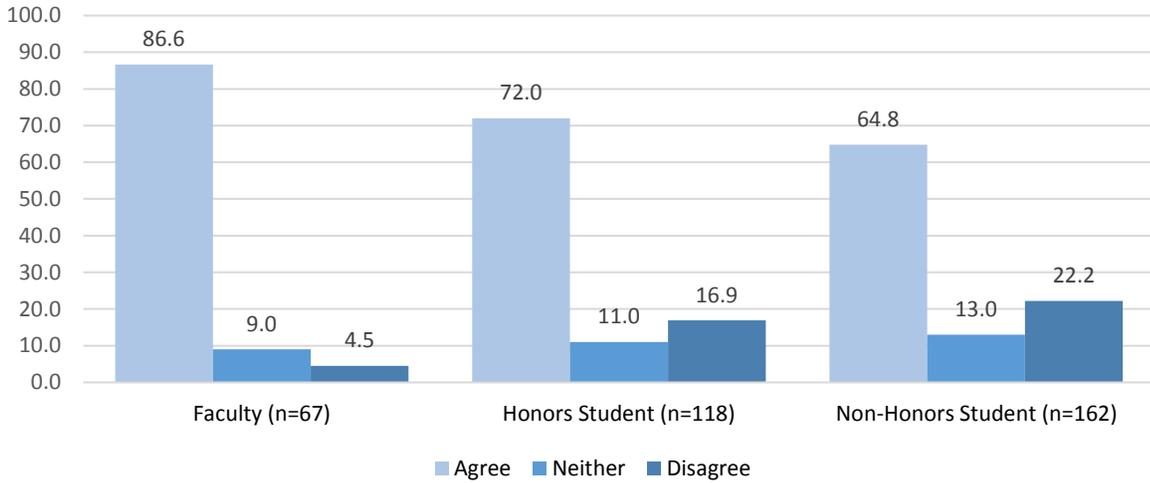
**Figure 8. E-Series Course Challenged Students to Think from Multiple Perspectives**

| | Agree | Neither | Disagree |
|---|---|---|---|
| Faculty (n=67) | 86.6 | 7.5 | 6.0 |
| Honors Student (n=114) | 69.3 | 16.7 | 14.0 |
| Non-Honors Student (n=161) | 73.3 | 11.8 | 14.9 |
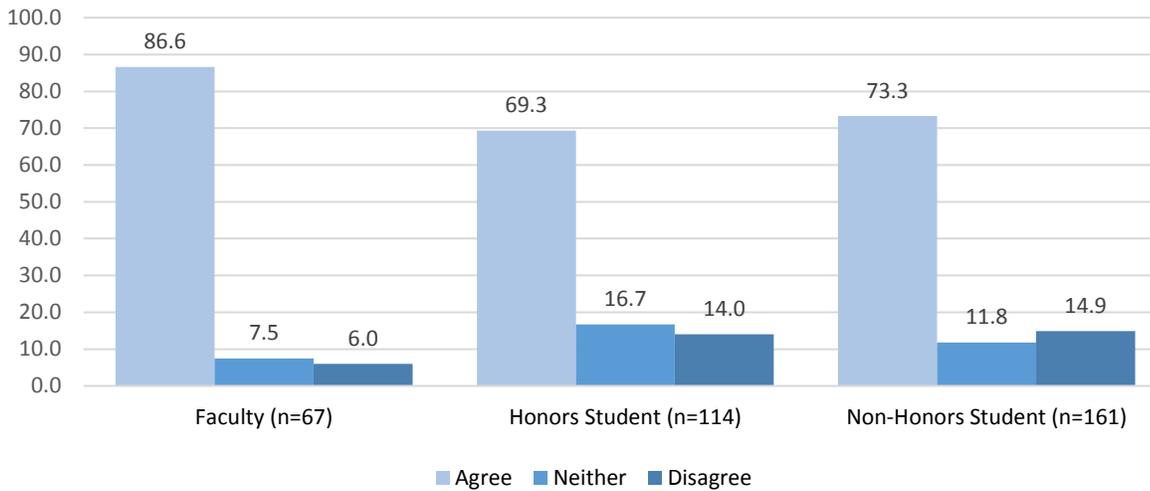
**Figure 9. E-Series Course Encouraged Creative Thinking**

| | Agree | Neither | Disagree |
|---|---|---|---|
| Faculty (n=67) | 79.1 | 14.9 | 6.0 |
| Honors Student (n=112) | 53.6 | 21.4 | 25.0 |
| Non-Honors Student (n=162) | 54.3 | 20.4 | 25.3 |

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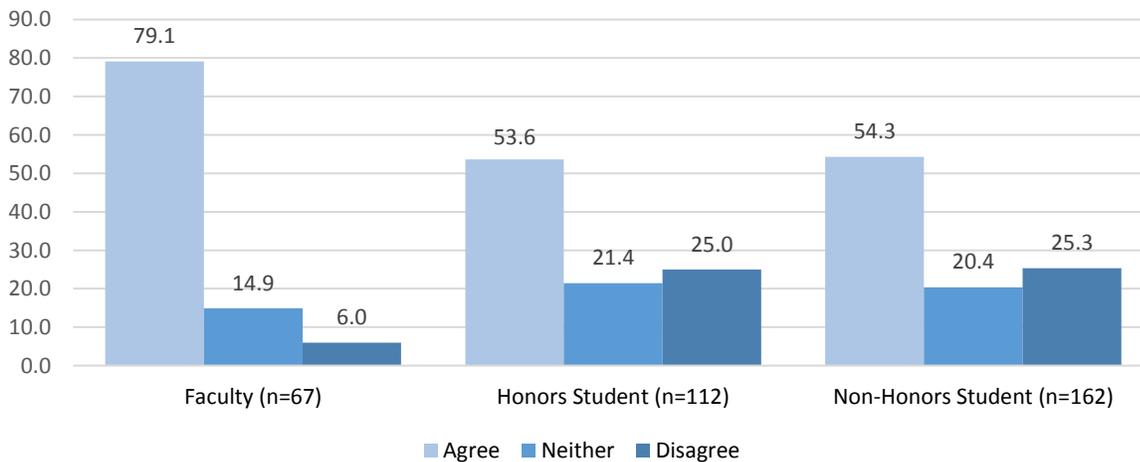
Figure 10. E-Series Course Encouraged Critical Thinking
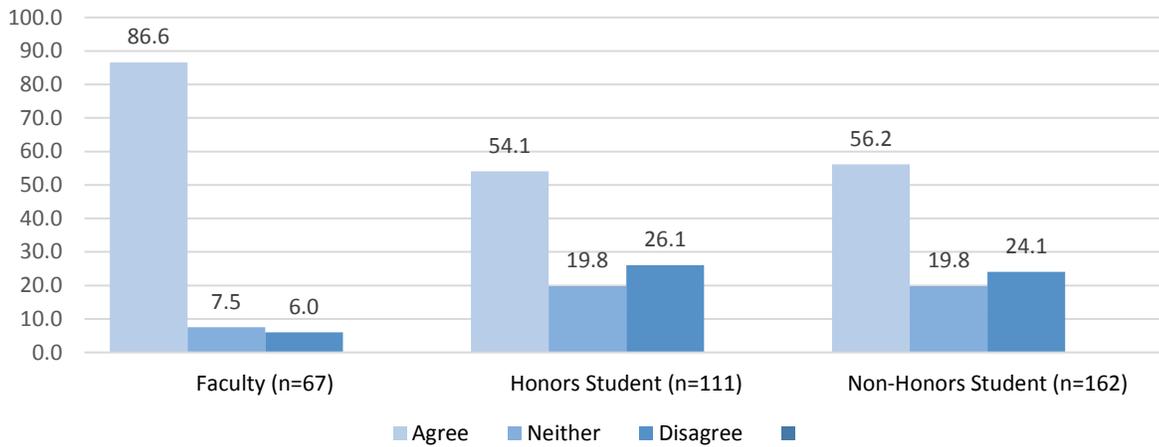


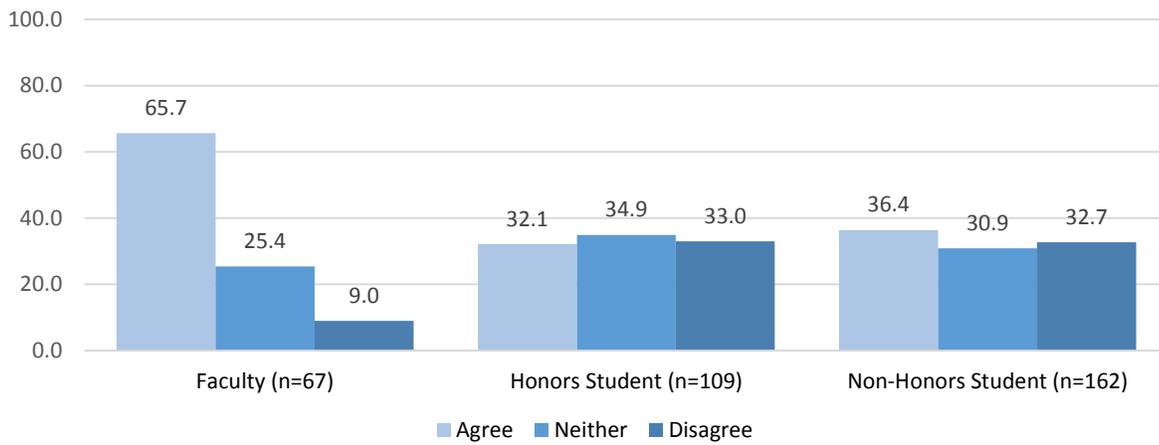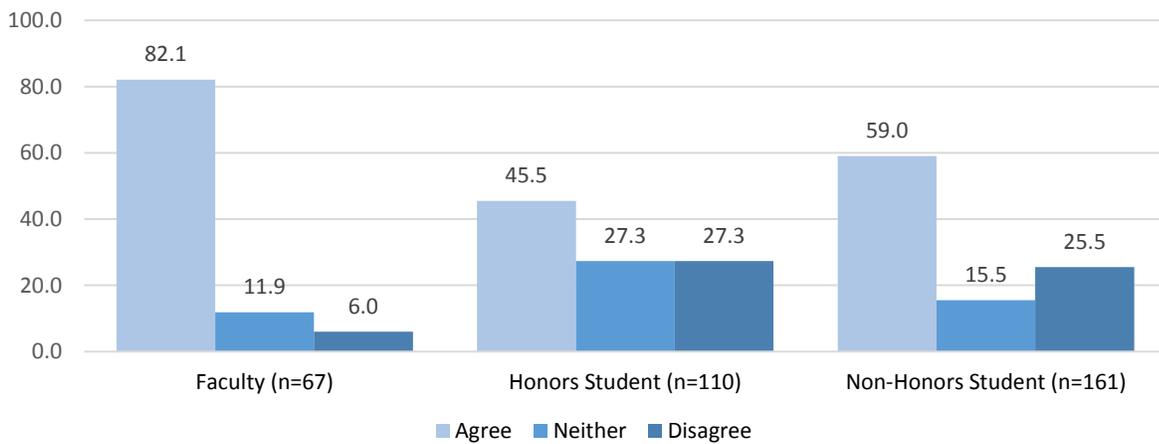Figure 11. E-Series Course Helped Improve Problem-Solving



Figure 12. E-Series Course Improved Ability to Analyze Information

Overall, the data provide compelling evidence that both faculty and students feel that E-Series courses help students develop foundational abilities for learning and development. In brief, a significant majority of faculty (80% or more) agree that E-Series courses help meet the course objectives of student engagement, improved writing skills, increased curiosity, the ability to draw on multiple perspectives to approach issues in a field or in society, enhanced critical thinking, and the ability to analyze information. A large share of faculty (77.6%) also perceive that E-Series courses help students become excited about learning and increase creative thinking. Faculty were least likely to perceive that E-series courses helped improve problem solving skills (65.7%).

Student perceptions about the degree to which E-Series courses help them attain the intended learning goals largely mirrors those of faculty. Specifically, honors students are slightly less likely than non-honors students to report that E-Series courses provoked student learning and development, with the notable exceptions of the degree to which E-Series increased engagement (71.3% of honors students and 67.5% of non-honors students) and curiosity (72% of honors students and 64.8% of non-honors students). It is likely that non-honors students had not taken as much acceleration credit as honors students and, thus, had more potential to develop from engagement in a foundational inquiry-based course. This pattern in the data indicates that E-Series courses have somewhat of a leveling affect in student learning and development because E-Series provide non-honors students with a relatively infrequent opportunity to engage in small classes with a challenging and creative curriculum early in their college career. It is noteworthy that the largest gap between honors and non-honors students in perceptions about the academic benefits of E-Series courses regards the development of analytical skills (45.5% and 59% respectively; see Figure 12.). It appears that E-Series courses are particularly useful for helping non-honors students develop foundational analytical skills, which are likely to generate the ability to develop multiple other academic skills in later undergraduate courses including those in their majors.

At least 65% of both non-honors and honors students agree that E-Series courses fostered the following aspects of learning and development: engagement, curiosity, and thinking from multiple perspectives. Between 42% and 64% of both honors and non-honors students perceive that E-Series courses enhanced their excitement about learning, improved their writing, fostered creative and critical thinking, and increased their ability to analyze information. Consistent with results for faculty, both honors and non-honors students are least likely to report that E-Series courses helped them develop problem-solving skills (32.1% and 36.4% respectively; Figure 11). However, Scholarship in Practice courses, also a new addition to the current Liberal Studies requirements, are designed specifically to help students attain competence at applying knowledge to creating projects or products that address various disciplinary problems and can build on E-Series to increase problem-solving further.

*Pedagogical Strategies used in E-Series Courses to Promote Student Learning and Development*

Figures 13-19, below, show the distribution of responses by faculty, honors, and non-honors students to the following question stem: "Please indicate the extent to which each of the following approaches used in your E-Series course helped students be better students and learners (or, for students "helped you become a better student or learner")." E-Series courses that are approved for inclusion in the Liberal Studies curriculum must illustrate, through descriptions of course content, materials, and assessments, that the course will incorporate pedagogical strategies that propel attainment of the learning objectives described in Figures 4-12 above. Key findings are summarized following Figure 19 below.

**Figure 13. Percentage Distribution of Responses by Faculty and Students: Using Big Idea in E-Series Course Improved Learning**

Faculty (n=67): Helpful 91.0, Neither Helpful nor Unhelpful 4.5, UnHelpful 3.0, N.A. 1.5
Honors Student (n=165): Helpful 79.4, Neither Helpful nor Unhelpful 7.9, UnHelpful 8.5, N.A. 4.2
Non-Honors Student (n=162): Helpful 62.3, Neither Helpful nor Unhelpful 13.6, UnHelpful 16.0, N.A. 8.0
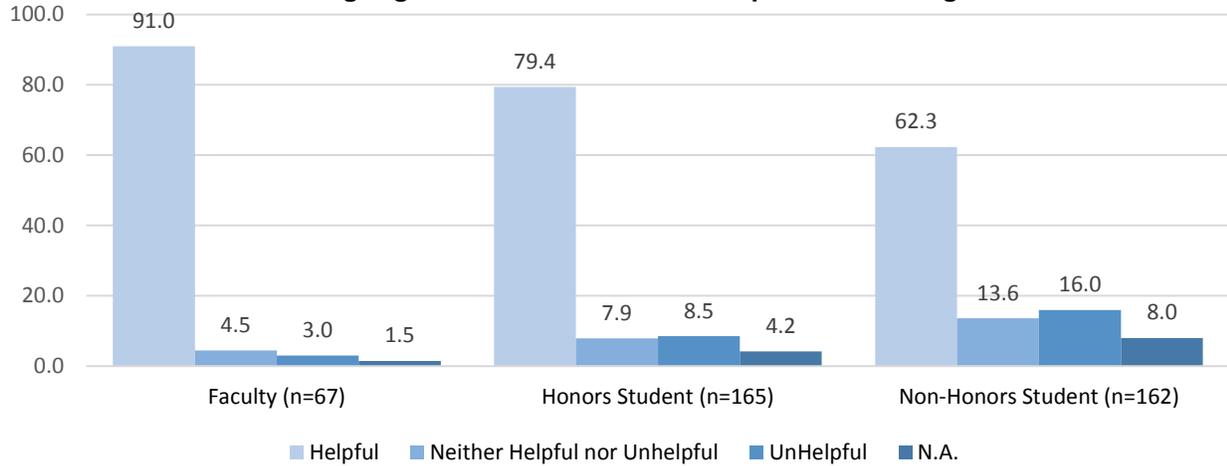


**Figure 14. Percentage Distribution of Responses by Faculty and Students: Interactive In-Class Activities in E-Series Course Improved Learning**
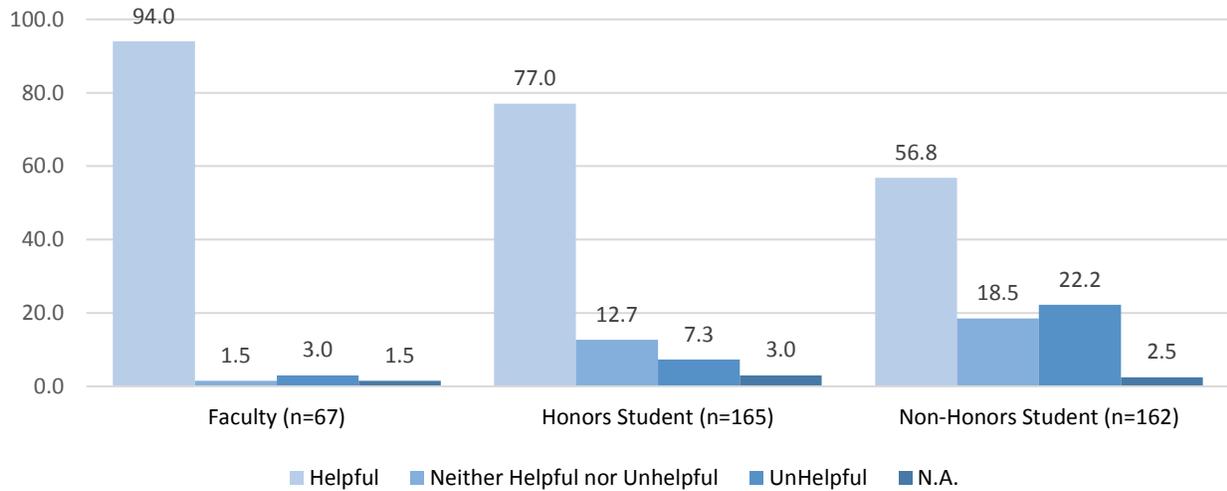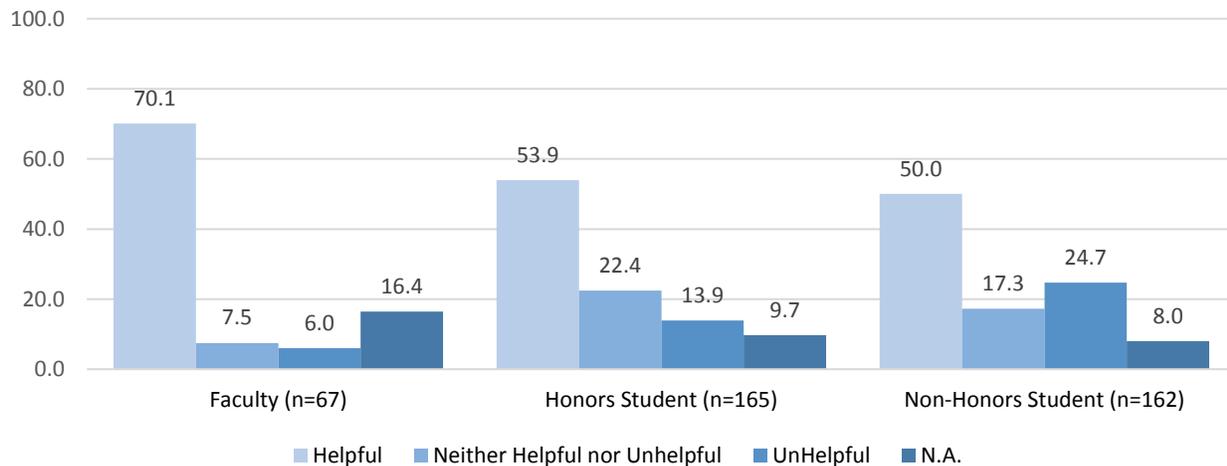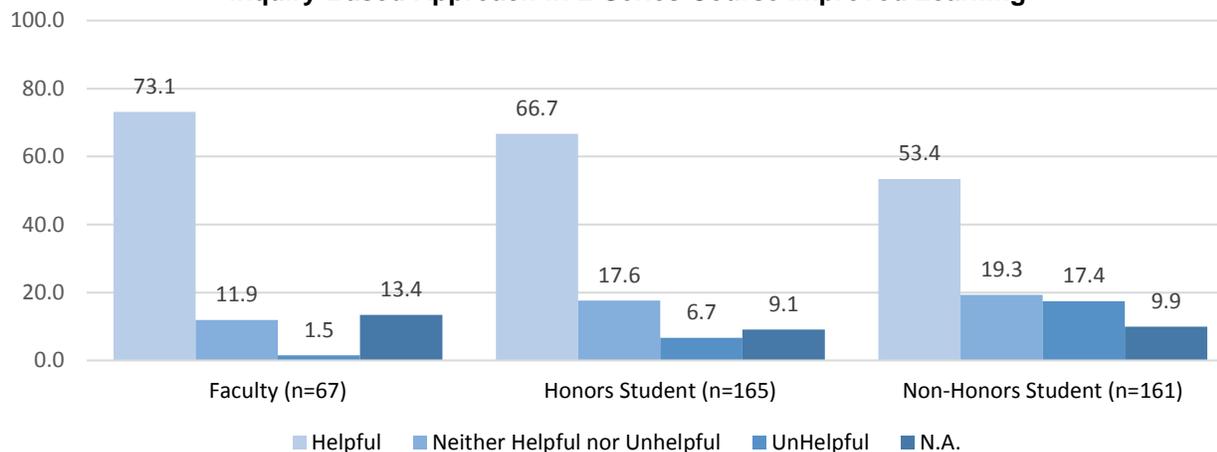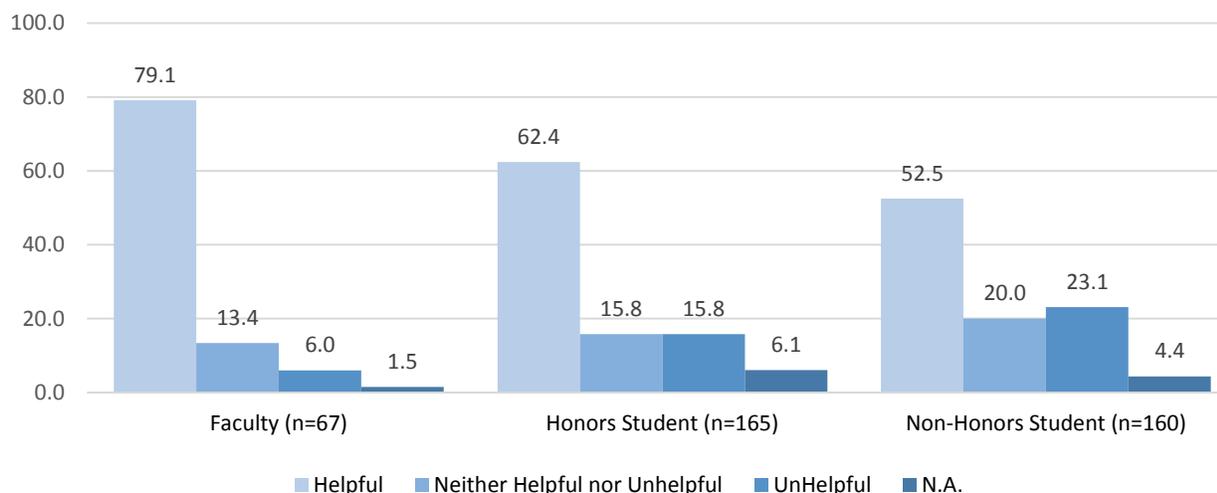
Faculty (n=67): Helpful 94.0, Neither Helpful nor Unhelpful 1.5, UnHelpful 3.0, N.A. 1.5
Honors Student (n=165): Helpful 77.0, Neither Helpful nor Unhelpful 12.7, UnHelpful 7.3, N.A. 3.0
Non-Honors Student (n=162): Helpful 56.8, Neither Helpful nor Unhelpful 18.5, UnHelpful 22.2, N.A. 2.5



**Figure 15. Percentage Distribution of Responses by Faculty and Students: Small Group Work in E-Series Course Improved Learning**

Faculty (n=67): Helpful 70.1, Neither Helpful nor Unhelpful 7.5, UnHelpful 6.0, N.A. 16.4
Honors Student (n=165): Helpful 53.9, Neither Helpful nor Unhelpful 22.4, UnHelpful 13.9, N.A. 9.7
Non-Honors Student (n=162): Helpful 50.0, Neither Helpful nor Unhelpful 17.3, UnHelpful 24.7, N.A. 8.0

**Figure 16. Percentage Distribution of Responses by Faculty and Students: Inquiry-Based Approach in E-Series Course Improved Learning**

Faculty (n=67): Helpful 73.1, Neither Helpful nor Unhelpful 11.9, UnHelpful 1.5, N.A. 13.4
Honors Student (n=165): Helpful 66.7, Neither Helpful nor Unhelpful 17.6, UnHelpful 6.7, N.A. 9.1
Non-Honors Student (n=161): Helpful 53.4, Neither Helpful nor Unhelpful 19.3, UnHelpful 17.4, N.A. 9.9

Legend: Helpful | Neither Helpful nor Unhelpful | UnHelpful | N.A.

**Figure 17. Percentage Distribution of Responses by Faculty and Students: Intensive Writing Requirements in E-Series Course Improved Learning**

Faculty (n=67): Helpful 79.1, Neither Helpful nor Unhelpful 13.4, UnHelpful 6.0, N.A. 1.5
Honors Student (n=165): Helpful 62.4, Neither Helpful nor Unhelpful 15.8, UnHelpful 15.8, N.A. 6.1
Non-Honors Student (n=160): Helpful 52.5, Neither Helpful nor Unhelpful 20.0, UnHelpful 23.1, N.A. 4.4

Legend: Helpful | Neither Helpful nor Unhelpful | UnHelpful | N.A.

**Figure 18. Percentage Distribution of Responses by Faculty and Students: Feedback on Writing in E-Series Course Improved Learning**

Faculty (n=67): Helpful 88.0, Neither Helpful nor Unhelpful 10.4, UnHelpful 1.5, N.A. 0.0
Honors Student (n=165): Helpful 74.5, Neither Helpful nor Unhelpful 8.5, UnHelpful 12.1, N.A. 4.8
Non-Honors Student (n=161): Helpful 61.5, Neither Helpful nor Unhelpful 16.8, UnHelpful 18.0, N.A. 3.7

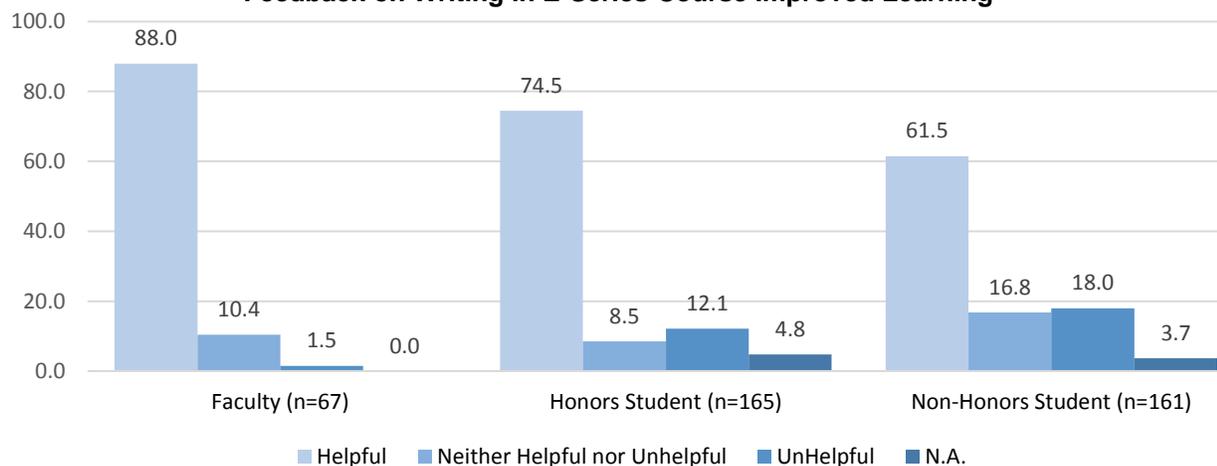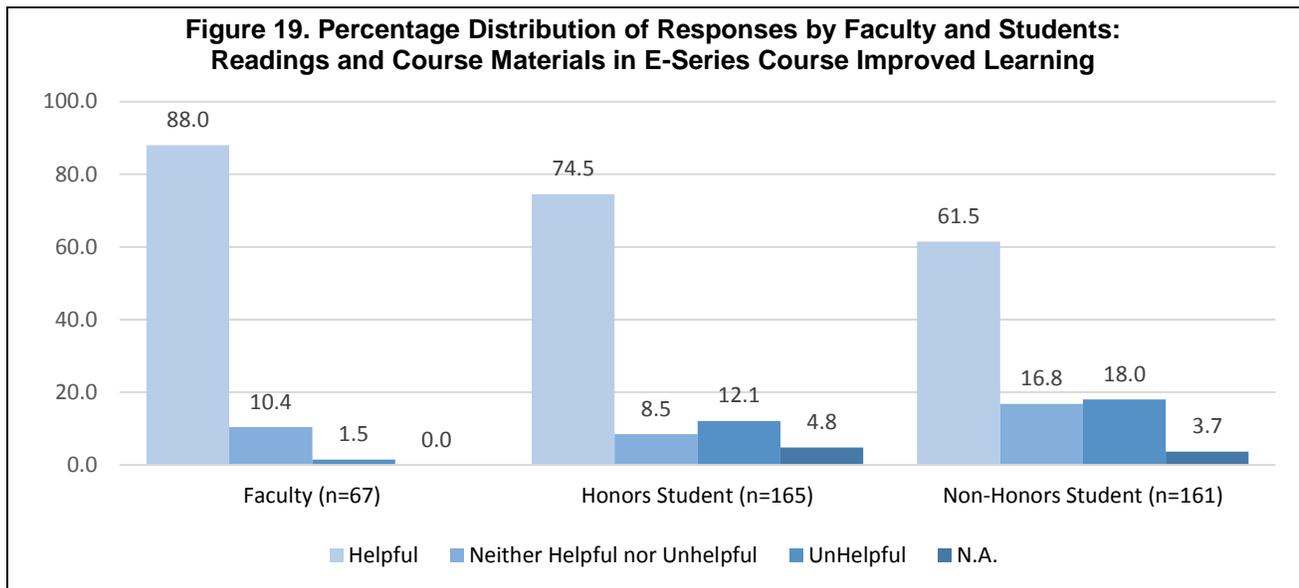Legend: Helpful | Neither Helpful nor Unhelpful | UnHelpful | N.A.

**Figure 19. Percentage Distribution of Responses by Faculty and Students: Readings and Course Materials in E-Series Course Improved Learning**

A large majority of faculty instructors agree that the following pedagogical strategies helped students meet E-Series learning objectives: interactive in-class activities (94%), exploring a big idea or question (91%), the provision of writing feedback (88%), and the readings and course materials used in E-Series (88%). A smaller majority of faculty instructors (79.1%) perceive that the intensive writing requirements helped students attain E-Series competencies and 73.1% feel that the inquiry-based model was helpful. However, 13.4% of instructors chose "NA" for this last category indicating that they did not use an inquiry-based approach, possibly because they were unfamiliar with the term for this pedagogical technique (Figure 16.). Still, a significant majority of faculty used an inquiry-based approach, which fosters the capacity for life-long learning. Of faculty instructors who responded to the survey, 70.1% found small group activity helpful and 16.4% appeared not to use small group work in their E-Series courses.

The four pedagogical elements in E-Series courses that both honors and non-honors students consider most helpful are having the course center around a big idea or question (79.4% and 62.3% respectively), interactive in-class activities (77.0% and 56.8%), receiving feedback on writing (74.5% and 61.5%), and the types of course materials used (74.5% and 61.5%). The next most helpful types of pedagogical elements according to students were using an inquiry-based approach (53.4% of non-honors and 66.7% of honors students) and intensive writing requirements (52.5% of non-honors and 62.4% of honors students). The smallest majority of students deemed small group work effective for learning (50.0% for non-honors and 53.9% for honors students).

**Summary of Qualitative Findings**

*Instructor Data*

Benefits of E-Series Courses to Students

E-Series instructors believe strongly that E-Series courses are a crucial cornerstone for a strong undergraduate curriculum at Florida State University. One interviewee stated that "…these (E-Series) courses would have not only improved undergraduate skills over the course of the first three years of study, but would have also done more to put FSU on the map as an institution of great imagination, creativity, and originality" (if we were able to require two or more E-Series courses). Other instructor comments that illustrate the value of E-Series courses include: "I want our students to have every bit of the opportunity offered at other liberal arts schools such as the University of Chicago and Yale." Echoing that sentiment, another instructor commented that "We are getting good students and we are keeping them and it would be great to have something (like E-Series) outside of a traditional university

experience." An instructor who felt strongly that FSU should retain and expand E-Series courses said "In terms of the E-Series program overall, I think it's a really good idea. I understand it's difficult to administer and I know there has been some resistance from both faculty and students, but I think it's a real shame if people go to a university and are not required to take things they never would have had an opportunity to explore." The following comment reflects a fairly common finding from the faculty interviews that developing E-Series courses ignite creative and effective teaching: "The E-series idea allows for a different kind of course to be offered - it allows us to range a bit further outside of our usual (teaching and disciplinary) boxes and herein lies its strength."

Effectiveness of the E-Series Model of Pedagogy

Faculty also underscore that E-Series course design requirements and pedagogical methods seem to facilitate student development of the intended learning outcomes, particularly for critical thinking, analyzing information from multiple perspectives, creative thinking, student engagement and improved writing. E-Series faculty feel that the writing requirements – including feedback – are crucial for helping students develop analytical and flexible thinking as well as effective communication skills and should be retained. The following comments illustrate faculty enthusiasm about the potential for E-Series courses to provoke deep learning.

- One success in all three classes – and the students might disagree – I've seen a measurable change in how they conceptualized critical thinking: as fun, rather than an exercise that you master for a test.
- The most important aspect of this is course is that senior faculty are working with freshmen. …I wish all of our freshmen had the opportunity to make relationships with senior faculty because senior faculty can guide students to new opportunities that grad students may not know about. This can make a big difference (for students) and is potentially the most transformative aspect of these courses.
- Classes are taught by professors not grad students. It is easy to get lost at a big university like FSU and here (through E-Series) you can create a relationship with faculty. These classes are also current and cover topics that are of interest now. A chance to play with the nature of the course itself, break the boundaries of what is found in a regular classroom. Outside the bounds of the discipline.
- The peer evaluation in class seemed to be the most helpful to the students in improving their writing. But you could look at the first draft compared to the third draft, and there were huge differences for most students.
- I do feel like I'm taking what I know about my research and really helping (non-STEM) students.
- (Asked about how E-Series writing requirements influence students)…it's changing their understanding, and that's sweet to me. That's my goal, what I want to do as an educator. So, I think you have to have the writing.
- So I think the E-series is hitting all the marks I thought it was supposed to (getting students to think from multiple perspectives, develop writing, creativity, and analytical thinking).
- …on their course evaluation…they say they really like…the activities where they can work together and getting that (writing) feedback.
- …(compared to other undergraduate courses, E-Series are) more of an intellectual experience as opposed to just teaching how to do specific things.

Value of E-Series Courses for Teaching and Curriculum Development

A number of quotes elaborated on how E-Series courses enhanced departmental curricula and teaching:

- We really wanted to not just say that this part of the class meets the (E-Series course design) requirement, but rather we wanted to change the (whole) class. …Seeing what the requirements were allows us to think of other things that we could aspire to in our teaching. We changed our research methods course in order to meet some of these (E-Series) requirements. For us the timing was very fortuitous and (it was) a good thing to have those benchmarks (course requirements and learning objectives).

- …having to fill out those forms was extremely useful for thinking about how to develop the course. Like anything else, you do it once and then you know what to do. (We) thought through what kind of assessments we wanted to have. What are we doing in our teaching, what do we need to change?

- (E-Series) is a valuable endeavor. It is valuable in order to force departments across campus to develop courses that meet all of these criteria. …it started a conversation in and between departments on teaching in general.
- Some of my pedagogy (inquiry-based, more open-ended creative writing, pushing intellectual risk-taking) from my IFS course has transferred into my other courses.

Barriers to Sustainability and Quality of E-Series Courses

The surveys also pointed to limitations of and barriers to the sustainability of the E-Series program. Representative of several faculty comments, the following quote illustrates the tension between offering small sections and the feasibility of offering enough E-Series courses and seats: "By having smaller classes, it may potentially put a strain on our departments." "…We are not thrilled with bigger classes and would want smaller classes/ honors classes and more writing in classes (but do not have enough faculty)."

A majority of faculty interviewed stated that they would like to develop ways to grade and give in-depth feedback on writing more efficiently, which is often prohibitively time-intensive. Accordingly, most instructors who participated in the survey stated that teaching assistants or other resources are crucial for the sustainability of E-Series. Several respondents asked about the possibility of expanding university resources to provide writing tutoring to students that could supplement the work in E-Series and other courses. Others suggested that departments receive more resources such as funding to hire grading assistants or to provide access to trained student mentors. Reflective of these sentiments, instructors stated "…it is hard for faculty to return (to teaching E-Series) more than three times because it is often not built into faculty loads." And "It's a struggle because although people want to do that (teach small sections of E-Series), if you don't have a TA to help in class it's too much." Roughly half of the faculty interviewed either were not aware of E-Series enrollment funding or did not know how enrollment funding was utilized in their departments.

Another issue that might impair the overall effectiveness of E-Series courses is that in order to offer enough E-Series seats sections need to be larger than ideal, which constrains interactive discussion, depth of student engagement, and the ability to provide ample and meaningful feedback on writing. In general, faculty who participated in the intensive interviews feel that E-Series learning objectives are better suited to small sections that allow for maximal interaction and engagement between faculty and students. In addition to large section sizes, a common constraint to intensive interaction and engagement in E-Series are the physical characteristics and configurations of many classrooms, many of which have fixed seats and long distances between instructor and student spaces, inhibiting intensive and effective interaction and inquiry-based learning.

E-Series courses challenge students to take intellectual risks – that is, to participate actively in learning by brainstorming, asking questions, making conjectures, and suggesting approaches or solutions to problems despite the possibility of making mistakes. However, several E-Series instructors observed that students often resist engaging in intellectual risk-taking in class and are uncomfortable with generating their own knowledge or suggesting a novel idea. Instead, many students prefer to supply specific answers to rote questions under conditions of some certainty. This is an area in which instructors would particularly welcome meeting with other faculty instructors to learn more about techniques for reducing student resistance to intellectual risk-taking.

Regarding student readiness for E-Series courses, faculty commonly noted that students seem to bring fairly strong critical thinking skills into courses and that E-Series courses help them develop even stronger critical thinking. Conversely, instructors feel that students seem to struggle with thinking creatively and, as noted above, are very reluctant to take academic risks in their classes. Faculty want these classes to continue, but addressing these problems is a necessary part of sustaining the program for future FSU undergraduate populations. Several respondents feel that the E-Series program might

languish or fail to reach its full potential without additional resources to support smaller class sizes and/or if chairs cannot allocate enough departmental resources to offer E-Series courses regularly.

<u>Suggestions for Enhancing the E-Series Curriculum</u>

Future work on the E-Series program should involve better communication about the importance of the E-Series curriculum within FSU's Research 1 university context, increasing resources for effective teaching in E-Series courses through both formal pedagogy workshops and informal discussions with colleagues in other departments about approaches to teaching E-Series courses. Various faculty discussed the value of a forum for communicating with other instructors outside their discipline. When asked about limitations to using E-Series pedagogy, one instructor cited large class-size as a primary barrier to using innovative assignments, but is interested in discussing solutions to this issue with other faculty. The following comment illustrates the importance of providing faculty with more opportunities to discuss teaching with peers: "I've read about the flipped classroom, and I haven't really come up with effective strategies for how to implement that yet. But I think figuring out ways for faculty to share their best assignment would be useful. Or things to do in a large lecture…So, this is part of great problems of universities – we all get in our disciplinary silos yet we have common interests. Figuring out ways for faculty to meet each other is the big interdisciplinary challenge." Consider, also, the faculty suggestion to engage both E-Series students and faculty throughout the university in one space: "So, another thing that I wonder if there's room to do…I wonder if there were more cross-talk between E-Series classes. Again, the university is just so big, it's not like we could do this for all E-Series students or something. But if there were a seminar series or a film series or some kind of thing that students and faculty were jointly invited to."

*Student Data*

<u>Benefits of E-Series Courses to Students</u>

Many students had positive things to say about their experiences in E-Series courses, though this tended to be patterned by course size, with more positive comments from students who were enrolled in small sections (whether non-honors or honors students) and generally less favorable comments by students in large sections. The following comments capture the positive remarks many students made about E-Series courses.

- I really appreciated the class because of its small size. It was very interactive and I learned, not only from the professor, but from my classmates, which is a learning style very conducive to critical thinking and collaborative learning.
- I loved my E-Series course; my professor made discussions engaging and I looked forward to attending class every day.
- I found this E-Series course particularly engaging because it allowed me to take an interesting and thought-provoking class on a topic area I have an interest in and passion for, but am not majoring in.
- This course requires you to use every part of your brain. From creativity to problem solving to academic research! I absolutely loved it and benefitted from every project.
- I think that this course was very helpful because it provided a structure in which I was able to pursue and complete an independent research project with the guidance and input of my professor, and in the process of doing so I learned research skills -- especially with regard to the use of resources available at FSU which as a freshman I had never accessed before -- that have proven very helpful in future courses, including those I'm currently enrolled in.
- In completing a reasonably lengthy research paper on a topic entirely of my choice, I also think I gained confidence in my ability to complete serious independent projects, which I was previously unsure I would be able to do.
- This class has hands down been my favorite course at FSU so far.
- I now know how to write a research paper thanks to this course. THANK YOU!
- From creativity to problem-solving to academic research! I absolutely loved it.

<u>Limitations of E-Series Courses</u>

As noted above many student respondents also disliked either being required to take an E-Series course or the nature of the particular course in which they were enrolled.  One theme in the more negative student comments is that students did not want to learn things that did not apply directly and obviously to their major. In fact, some of the quotes point to the importance of the opportunity to develop analytical, abstract, and other forms of higher-order thinking beyond specific content, particularly early in a student's academic career.

- I took the course out of interest in the topic, not to receive special credit and I regret taking it because it was my first non-A grade in my two years at FSU. E-series are designed to help students develop critical thinking (among other things) but I wish they could be a unique course where students can improve and grow as a critical thinker without having to worry about how it relates to grades. It's very important for students to write and improve their writing- but the courses should be designed to help students see the improvement- if I could have edited my papers and earned back points, I would have been forced to fix my areas of weakness rather than hoping I get it the next time on a completely different topic. [Student in a large section]

- I didn't actually learn anything helpful to my career. I think IFS classes should be more like the catering class given at fsu.  something where you get experience on what you are actually going to be doing with your career.

- I didn't want to take it I had to for the requirement...it seemed like the least awful option at the time.

- The reason it didn't engage my interest was because I was forced into it. I was forced to take a course irrelevant to my major in order to please you guys. Granted, we made the best of a bad situation and it was a mildly interesting matter, but it's really annoying when you're taking time away from my ability to study for financial accounting, which I actually need, to study for this class, which I will never use.

- This was a backwards course with an innovative title.

- To be most effective, this type of class needs strong student-student and student-instructor interaction. There were far too many students enrolled to be able to do this well.  We were able to break up into smaller groups at times, but we couldn't get into extended discussions of the concepts involved and our opinions on them.

**Conclusions**

This E-Series study illustrates the power of E-Series courses to stimulate student intellectual development and an enhanced capacity for success in courses across the curriculum, including major courses. The data from this research, obtained through quantitative surveys and qualitative interviews, indicate that the design and delivery of E-Series courses are very effective in helping students attain the specific competencies and skill sets that E-Series courses were intended to support. That is, these courses help students develop essential academic tools for success in and outside of the classroom. E-Series courses have also stimulated faculty excitement about undergraduate teaching and have ignited conversations across campus about the importance and value of teaching, in general. However, it is particularly clear from the faculty interviews that constraints on implementing the most effective E-Series practices (particularly constraints on intensive interaction and engagement and the provision of in-depth feedback on writing) will need to be addressed in order for E-Series courses to be feasible and to maximize their transformative power for students.

Although the faculty and student feedback diverge at some points, they also converge at crucial points indicating key areas essential to achieving the E-Series goals. Faculty and students alike highlighted the potential for these classes to facilitate improved critical thinking, particularly in small sections that use inquiry-based methods and that encourage intellectual risk-taking. Though many students resist intensive writing requirements, a significant share of students surveyed acknowledged the value of the

writing requirements and desire more opportunities for recursive writing processes involving feedback and revision. Finally, many of the students who expressed frustration with E-Series courses were critical of the way these classes challenge them outside of their major area of study while potentially penalizing them by negatively affecting their grade point average. Faculty also registered concern about students so fixated on getting high grades that it impairs their ability to develop broad but essential intellectual skills. These points of convergence in the faculty and student feedback indicate some of the topics that ought to be prioritized in improving E-Series courses, including creating a climate that encourages intellectual risk-taking, which fosters higher-order thinking and a sense of self-efficacy in students.

In addition, more effective and widespread communication to students about the value of E-Series courses (and inquiry-based courses in general) might increase the chances that students will see the long-term value of E-Series for success in the major and beyond, which might, in turn, increase student engagement in this course experience. Further, students would likely most benefit from E-Series courses if they took them within their first year, but that would require having enough seats to accommodate all new FTICs each year. More outreach to students is warranted to capitalize on the value of the courses and to increase student enthusiasm for the courses.

A communication issue identified by E-Series instructors is that faculty within different departments are often teaching E-Series courses on similar topics without realizing that someone else is approaching the same issues from a different perspective. Thus, faculty would like regular forums (in-person and online) in which to discuss substantive issues as well as structural issues, such as how to manage small group interactions and do peer review in large classrooms. In addition, having ample departmental resources (enough faculty to teach small sections of both E-Series and major courses) would also allow more faculty to teach effective, truly inquiry-based E-Series courses.

Future workshops will focus on creating opportunities for faculty to share strategies and resources for teaching E-Series courses, with a mix of informal opportunities for E-Series instructors to interact along with more structured discussions that address specific topics including increasing intellectual risk-taking, using E-Series courses to enhance research and other professional pursuits, and creating effective but feasible writing assignments. Obtaining more information from department chairs about their perceptions of the value of E-Series courses and potential barriers to offering adequate numbers of E-Series seats would likely increase program sustainability.

In addition, more comprehensive and direct outreach to advisors and students about the value of E-Series for student success and more in-depth data collection on student perceptions of E-Series courses and sharing of data with students is warranted.

Last, showcasing faculty-student collaboration in E-Series courses by showcasing student course projects will provide more opportunities for students and faculty alike to learn the value of these inquiry-based courses and to discuss models for effective E-Series courses from both the student and faculty perspective.

Overall, perceptions of E-Series courses are positive in terms of their ability to enhance student learning and engagement in high-order thinking as well as the professional satisfaction that instructors experience from designing and teaching them. This new inquiry-based curriculum provides foundational academic skills and habits of mind that can support success in major courses and beyond. In addition, based on the data from this study as well as a good deal of anecdotal information, E-Series courses have provided a platform for instructors to develop and implement creative and effective teaching strategies in undergraduate classrooms. We continue to welcome the development of new E-Series courses, which give our undergraduate students a chance to interact closely with accomplished faculty from a wide variety of disciplines.